

§ 173.5b

49 CFR Ch. I (10–1–10 Edition)

§ 173.5b Portable and mobile refrigeration systems.

This section authorizes the highway transportation of residual amounts of Division 2.2 refrigerant gases or anhydrous ammonia contained in non-specification pressure vessels that are components of refrigeration systems, which may or may not be permanently mounted to a transport vehicle, used for agricultural operations. These refrigeration systems are used at field sites to cool (pre-cool) produce before the produce is loaded into trucks or railcars for market or used to supplement stationary refrigeration systems during peak harvest times. The components of these refrigeration systems are commonly known as vacuum tubes, accumulators, refrigeration units, ice makers, pressure coolers, or evaporators.

(a) *General packaging requirements.* Each non-specification pressure vessel must conform to the following:

(1) Each pressure vessel must be designed, manufactured, and maintained in accordance with applicable requirements of the ASME Code (IBR, see § 171.7 of this subchapter).

(2) Except as authorized in this section, each pressure vessel and associated piping must be rated at a maximum allowable work pressure (MAWP) of 250 psig. The pressure in these components may not exceed MAWP.

(3) Any part of the piping or pressure vessel separated from another component of the refrigeration system by means of a valve, blank flange, or other device must be equipped with a pressure relief valve set at MAWP. All lines that must be disconnected for transportation purposes must be closed by means of a cap, plug or blank flange, and valves at the end of disconnected lines must be tightly closed.

(4) The aggregate total volumetric capacity of components within the refrigeration system authorized for highway transportation in accordance with this section may not exceed 2,500 gallons per vehicle.

(5) Each pressure vessel and associated piping containing anhydrous ammonia must conform to the following:

(i) Piping with a diameter of 2 inches or more must conform to ASTM A 53

Schedule 40 or ASTM A106 Schedule 40 (IBR, see § 171.7 of this subchapter).

(ii) Piping with a diameter of less than 2 inches must conform to ASTM A 53 Schedule 80 or ASTM A 106 Schedule 80 (IBR, see § 171.7 of this subchapter).

(iii) The words "Inhalation Hazard" must be marked as required in special provision 13 in § 172.102 of this subchapter and, when practicable, within 24 inches of the placard.

(b) *Refrigeration systems placed into service prior to June 1, 1991.* (1) For refrigeration systems placed into service prior to June 1, 1991, each pressure vessel and associated piping for the condensing line ("high side") must be rated at an MAWP of not less than 250 psig. Each pressure vessel and associated piping for the evaporating line ("low side") must be rated at an MAWP of not less than 150 psig, except that each pressure vessel or associated piping that will contain refrigerant gas during transportation must be rated at an MAWP of not less than 250 psig. During transportation, pressure in the components that are part of the evaporating line may not exceed 150 psig.

(2) Each pressure vessel and associated piping that is part of the evaporating line must be marked "LOW SIDE" in a permanent and clearly visible manner. The evaporating line must have a pressure gauge with corresponding temperature markings mounted so as to be easily readable when standing on the ground. The gauge must be permanently marked or tagged "SATURATION GAUGE".

(3) Each pressure vessel and associated piping with an MAWP of 250 psig or greater containing liquid anhydrous ammonia must be isolated using appropriate means from piping and components marked "LOW SIDE".

(4) Liquid lading is only authorized in system components with a rated MAWP of not less than 250 psig.

(5) Prior to transportation, each pressure vessel and associated piping with a rated MAWP of less than 250 psig must be relieved of enough gaseous lading to ensure that the MAWP is not exceeded at transport temperatures up to 54 °C (130 °F).

(6) Refrigeration systems placed into service prior to June 1, 1991, may continue in service until October 1, 2017.

(c) Prior to transportation over public highways, each pressure vessel and associated piping must be drained of refrigerant gas or liquid anhydrous ammonia to the extent practicable. Drained contents must be recovered in conformance with all applicable environmental regulations. Residual liquid anhydrous ammonia in each component may not exceed one percent of the component's total volumetric capacity or 10 gallons, whichever is less.

(d) *System inspection and testing.* (1) Each refrigeration system authorized under this section must be visually inspected every year. The visual inspection must include items listed in § 180.407(d)(2) of this subchapter applicable to refrigeration systems. A certificate of the annual visual inspection must be dated and signed by the person performing the inspection and must contain that person's company affiliation. The certificate must remain at the equipment owner's office.

(2) Each refrigeration system authorized under this section must be proof pressure tested every two years beginning with the initial pressure test performed after manufacture. Additional pressure tests must be performed after any modification, repair or damage to a part of the system pressurized with refrigerant gas. System test pressures may not be less than one-and-one-half (1.50) times the rated MAWP of the system component or piping.

(3) Pressure relief valves must be successfully tested every two years at the MAWP for the components or piping to which they are attached. Pressure relief valves may be replaced and marked every 5 years with valves certified at the appropriate MAWP, in which case the valves need not be tested every two years. Valves that do not pass the test must be repaired or replaced.

(e) *Test markings and reports.* (1) Evidence of testing specified in paragraph (d) of this section must be marked on the right forward side of the refrigeration system with 2 inch high letters indicating type of last test (V = visual; P = pressure: hydrostatic or pneumatic) and the month/year in which it was performed. Reports and all of the re-

quirements for records of inspections including markings must be completed as specified in part 180.

(2) Pressure relief valves must be durably marked with either the date of last test, set-pressure and testing company or the date of last replacement, set-pressure, and certifying company, as applicable.

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§ 173.6 Materials of trade exceptions.

When transported by motor vehicle in conformance with this section, a material of trade (see § 171.8 of this subchapter) is not subject to any other requirements of this subchapter besides those set forth or referenced in this section.

(a) *Materials and amounts.* A material of trade is limited to the following:

(1) A Class 3, 8, 9, Division 4.1, 5.1, 5.2, 6.1, or ORM-D material contained in a packaging having a gross mass or capacity not over—

(i) 0.5 kg (1 pound) or 0.5 L (1 pint) for a Packing Group I material;

(ii) 30 kg (66 pounds) or 30 L (8 gallons) for a Packing Group II, Packing Group III, or ORM-D material;

(iii) 1500 L (400 gallons) for a diluted mixture, not to exceed 2 percent concentration, of a Class 9 material.

(2) A Division 2.1 or 2.2 material in a cylinder with a gross weight not over 100 kg (220 pounds), or a permanently mounted tank manufactured to the ASME Code of not more than 70 gallon water capacity for a non-liquefied Division 2.2 material with no subsidiary hazard.

(3) A Division 4.3 material in Packing Group II or III contained in a packaging having a gross capacity not exceeding 30 mL (1 ounce).

(4) A Division 6.2 material, other than a Category A infectious substance, contained in human or animal samples (including, but not limited to, secret, excreta, blood and its components, tissue and tissue fluids, and body parts) being transported for research, diagnosis, investigational activities, or disease treatment or prevention, or is a biological product or regulated medical waste. The material must be contained in a combination packaging. For liquids, the inner packaging must be leakproof, and the outer